Semantic Bricks for Performing Arts Archiving & Dissemination

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Recently, cultural temples in Flanders (Belgium) had little strategy to archive and disseminate their productions. Yet, the local government wants the productions to be archived as cultural heritage, schools want material bundles for educational purposes, and other (foreign) institutions want production clips for promotional or research aims. The research project PokuMOn (http://projects.ibbt.be/pokumon) deals with these problems and requirements of online distribution and archiving of multimedia of performing arts and (classical) music. In this paper, we tackle the following issues: i) the institutions want an easy to use, robust, de-central archive; ii) the institutions want to bundle and exchange their assets; iii) the institutions want to use a common metadata schema combined with their own schemas; and iv) the institutions want their (meta)data enriched and interlinked. The solution proposed in this paper elaborates on the distributed semantic open-source Bricks archiving and distribution architecture (http://www.brickscommunity.org) as ease of use, robustness, independence of central authorities, low-cost, and flexibility in offered services are crucial within the cultural community. This platform allows the institutions to configure, extend, and manage their own digital depot to their needs. In order to store and exchange all the information on their productions a new layered metadata schema is developed on top of the Bricks framework. It is an OWL DL (http://www.w3.org/TR/owl-guide) schema consisting of two layers: Dublin Core (http://dublincore.org) and Provenance (http://www.openarchives.org/OAI/2.0/guidelines-provenance.htm). The Dublin Core layer describes the digital objects in a general way as a greatest common divisor. All the fields of Dublin Core are optional and repeatable. These characteristics allow for easy mapping to and adoption of the proposed metadata schema. It forms a common   interoperability and discovery layer on top of the descriptions that are already distributed by the institutions. The second layer indicates the provenance of the Dublin Core descriptions. In most cases, the institutions have their own metadata schema which is mapped to Dublin Core. The provenance layer indicates the identifier of the original metadata description and the namespace of the original metadata schema. This information allows linking to the original descriptions, which are in most cases richer in information. To aggregate the digital objects in bundles (a/o for educational purposes) the Bricks framework is extended with an OAI-ORE (http://www.openarchives.org/ore) web service. It describes aggregations of Web resources in a semantic way via dereferencable URIʼs. Furthermore, we enrich the metadata semantically following the Open Linked Data principle. In our case, we apply linguistic processing on the plain text contained into some elements of the metadata such as title, contributor, subject, and description. The linguistic processing consists in extracting named entities such as persons, organizations, companies, brands, locations, and events using the OpenCalais infrastructure (http://www.opencalais.com). Once the named entities have been extracted, we map them to formalized knowledge on the Web available in GeoNames (http://www.geonames.org) for the locations, or in DBPedia (http://dbpedia.org) for the persons, organizations, and events, and feed this new knowledge back into the system. This way Bricks is semantically adapted and extended to offer an end-to-end solution to the institutions and third parties (schools, broadcasters, etc) that can search and harvest all data via web services. This paper shows how all media of performing arts productions can be archived, bundled and disseminated using distributed Semantic Web technologies. Finally, all is demonstrated within an end-to-end Proof-Of-Concept showing the feasibility of the approach in Flanders cultural temples establishing a durable cooperation between all actors involved.